# METHOD AND APPARATUS FOR IMPROVING CHANNEL ESTIMATE BASED ON SHORT SYNCHRONIZATION CODE

## ABSTRACT OF THE DISCLOSURE

A method and apparatus for estimating a communication channel impulse response $h(t)$ is disclosed. The method comprises the steps of generating $co_m(t) = co(t + mNT_c)$ for $m = 0,1,\Lambda ,M$ by correlating a received signal $r(t)$ with a spreading sequence $S_i$ of length $N$, wherein the received signal $r(t)$ comprises a chip sequence $c_j$ applied to a communication channel characterizable by an impulse response $h(t)$, and wherein the chip sequence $c_j$ is generated from a data sequence $d_i$ spread by the spreading sequence $S_i$; generating an estimated communication channel impulse response $\hat{h}_M(t)$ as a combination of $co_m(t)$ and $d_m$ for $m = 0,1,\Lambda ,M$ ; and filtering the first estimated communication channel impulse response $\hat{h}_M(t)$ to generate the estimated communication channel impulse response $h(t)$ with a filter $f$ selected at least in part according to the spreading sequence $S_i$.